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## How to get the information needed ?

This question probably is one of the most frequently asked questions in our days. A simple question - with complicated answers.

If you for example ask different people on the street how they usually behave to get the information they need, answers might differ from

- “Ask mommy” (that is, when a child for example wants to find out, why trees don’t have leaves during winter time)
- “Ask Google” (probably the most often mentioned answer, going from students, who use Google to search for the cheapest “lord of the rings DVD” to workers up to managers in high positions) and
- “Ask Jeeves” (if you get this answer, you’ll at least know that the person you’re talking to isn’t infected by the “Google-syndrome” and knows more about information retrieval than “typing-a-single-word-into-Google-and-believing-the-answer-will-be-truth-on-earth-solving-every-problem”<sup>1</sup>) up to
- “Ask Forrester<sup>2</sup>” (probably this answer will come from a person working in the IT department of some company)

The reason for the diversity of answers and also the complexity of the question is multilayered.

1. First of all, it concerns everybody irrespective of age, education, position, nationality and sex (For the kid, the question whether leaves just fall of the tree by chance or whether it is on purpose is equally important and hard to get a good answer to, as it is important for the student, where to find the cheapest DVD with the “ring of lords super edition”)
2. Secondly this question plays a decisive role in each situation it’s asked in (not mattering whether in leisure or during working life)
3. Thirdly the answer to this question can have consequences extending from very unimportant effects up to matters of life or death.

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<sup>1</sup> If you belong to those readers, who don’t know what might be meant by the answer “ask Jeeves”, you might want to check out the website [www.askjeeves.com](http://www.askjeeves.com). You’ll then find a search engine where you can type in a natural-language question and get answers as to

<sup>2</sup> And if you don’t know what’s meant by the answer “ask Forrester”, you better also check out [www.forrester.com](http://www.forrester.com) – one of the big business analyst hosts

4. The fourth reason is the much mentioned information overflow we live in nowadays: In no other time so much data (especially electronic data) has been available to us, as it's the case nowadays. Starting with unreliable, stupid information, which nobody ever seems to need; up to sensible business information that can be a matter of life or death to a company.

Therefore it is quite a challenge to give a general answer to the question where to get the information needed. It gets much easier by only asking how I personally plan to search for information in my future business life – therefore the following is just to be interpreted as my personal opinion and strategies and not as a general advice for how to search for information in the proper way!

### **Information in business life**

The context, where the question about finding the information needed has the most profound impact and possible consequences, probably is business life – at least speaking in terms of financial consequences and business success or failure.

#### **The perfection of information supply**

Of course, therefore the optimum of our aims usually is to get

- The *right information*
- to the *right person*
- at the *right time*
- in the *right extent*
- with the *right quality and reliability*
- in every *situation*.

Since such a high level of information supply unfortunately barely will be possibly reached in reality, we have to find out, in what situation which dimension (pace, quality, extent, reliability etc.) in the need of information is the most important to be met.

So in order to answer the question how to search for information in working life properly, we have to differentiate in what context and for what purpose the information is needed.

Besides, there is a vast extent of possible sources, where business and other information is provided. The decision for using a specific source in order to meet the information demand in a concrete situation also depends both on the context where information is needed and on the type of needed information (do I look for a phone number of a potential customer, or am I searching for specific details and developments in a certain area of R&D...?)

## How I will search information in my future business life

Regarding all those factors, it's very hard to make general statements about where I will search for Information in my future business life.

I therefore have decided, first to make some general statements about my searching-behavior in future business life. Afterwards I will go into the most important types of information sources (at least the most important ones in my opinion) in a tabular and hence very structured way. My intention thereby is to give a good overview of all different possibilities, where information supply is provided.

### Searching behavior

My searching behavior for future business life can be divided very briefly in the following categories, which I will go into in a bit more detail in this part:

- Make a strategy for the search of information
- Consider the diversity of information sources
- Don't treat search engines like finding engines
- Use a well organized document management system
- Don't forget information literacy.

First of all, it is important to state that (maybe just like many others), I very often have to realize, that my theory about how to search for information properly differs quite widely from how I practically do it.

### **Searching strategy:**

One of the reasons for this misbehavior lies in the fact, that I start searching for the needed information, without taking a moment for making a quick strategy, where to look for the information in order to search effectively.

Answering the following questions (deduced from the dimensions mentioned in the beginning of this essay) BEFORE starting the search, it is much easier to decide, whether to go into the database of a business research analyst host or whether to look up a printed directory:

1. What kind of information do I need?
  - Scientific or technical information in the context of R&D,
  - Information about a competitor/business partner/customer,
  - Organizational information,
  - market information,
  - News about recent developments in a country/branch/market,
  - Content for a presentation in a meeting
  - etc.)

2. What quality/reliability of Information do I need?
  - Highly reliable and high quality information that is absolutely correct
  - Scientific information, that can be verified any time, if needed
  - Quick information just showing tendencies and an approximate direction
3. How important is the information/How much do I (my company) want to pay for it?
  - Very important information on which I/others will have to make strategic decisions – can I afford to pay for example for searching in a business host?
  - Is it rather unimportant information, where no extra money should be spent?
4. How should the information be structured?
  - Collection of bare numbers and facts?
  - Information and statements that can be transformed to PowerPoint slides quite fast
  - Well structured and graphically visualized information with charts and tables
  - Written out in full texts in a structured and easily readable way
5. When do I need the information and how recent should it be?
  - Immediate information that is needed quickly and that has to be very up-to-date
  - Information that goes back a long time and that isn't needed immediately
6. How often is the information needed?
  - Information that's only needed once
  - Information that will be needed regularly, but just every year
  - Information that needs to be provided daily
7. Which sources are available?
  - Do I/my Company have access to a professional business database/to printed directories etc.?
  - Do I have access to the Internet and a printer etc?

Of course this isn't a complete list of questions that help setting up a search strategy. Depending on the situation, by answering just one question the others mightn't be needed to be answered. But the fact is, that taking some minutes to study, which strategy is the best in the concrete context of information need, will save a lot of time.

My first motto for searching information in business life therefore is:  
*Take the time to think of the suitable search strategy*

### ***Diversity of information sources***

Another reason for the gap between searching theory and practice lies in the fact, that in situations of information need, I often feel simple minded in terms of suddenly not remembering, how diverse sources for information are and how many different options I have in searching for Information. (That's also the reason why in the following part I have set up a table, with all possibilities of information sources. Putting up such a table beside the working desk might help remembering it in the moment I need it and thereby saving time for ineffective information retrieval in improper sources...)

So my second motto for searching information in business life can be stated as:  
*“Think of all possible information sources, where you might be able to get a good answer!”*

### ***Search engine, not finding engine***

A third reason for the misbehavior of searching in theory and practice lies in laziness: It often just feels so simple to type in some words in Google in the hope of finding the needed information. Instead of investing a bit time and commitment in the first place, the “Google syndrome” makes me feel it's easier, just to have a quick glance in Google, which often turns out to be at least half an hour of wasted time, because the results could have been found much easier, if I had directly looked up some other source.

This behavior seems not only to be a pattern I pursue, it much more shows to be some kind of mechanism, a lot of people stick to in our days.

It's caused by the fact, that most of us treat search engines as if they were “finding engines”.

Of course, good results also can be reached with a search engine – when it's just treated correctly. Results will become so much better, if only some simple rules of information retrieval are considered. Just to give some examples, I will stick to Google, since that's one of the most frequently used search engines:

- **Boolean search:** the simple usage of Boolean search (combining words with AND, OR, NOT) will help finding information in a much more exact way and also much quicker. (By the way, nearly every big search engine supports Boolean search – it's just the question of using it!)
- **Filetype-specification:** with the simple prefix “filetype:xxx” (e.g. filetype:pdf before an entered search term in Google, I will be able just to find PPT-files, if I need an input for the presentation tomorrow)
- **Site-Search:** If it is my aim to search a specific platform/website in the web, the prefix “site:xxx” (e.g. site:iudchur.net) gives me the possibility of searching just

exactly that site with my search term (that's very useful, if a website doesn't have any (good) search-feature)

- **Define-Feature:** If I need to have a collection of different definitions on a term, the "define-feature" in Google might help: with "define:xxx" (e.g. define:IT) I will get a vast amount of definitions and glossary entries in the webs, concerning the definition of my search term.
- **Advanced (multimedia) Search:** like with lots of other search engines, Google provides advanced search and retrieval for other file types than text (e.g. picture search, audio search etc.)

*My motto for using search engines for searching information in business life: Use Google when it fits the purpose, don't forget the search parameters and first of all: don't treat search engines like finding engines!"*

### ***Keeping order one's own documents***

Another important point to me is document management on one's own computer/in the office. A lot of time is daily spent to retrieve information that already has been used and that is saved on the computer or is lying somewhere in the office as a print out – but that cannot be found without investing several minutes or even hours, since it hasn't been filed correctly.

Tools like desktop searchers can be used as a support, but even there, it shouldn't be necessary, if only order is kept systematically, correctly and consistently. Already very simple concepts will help to reduce searching times a lot (e.g. structuring important links in the "favorites" of a browser or implementing a file structure in paper works).

*So in that area, my motto is the following:*

*avoid the searching of information in business life, by carrying out simple but effective document management/records management.*

### ***Stay information literate***

My last, but maybe also the most challenging statement is, always to stay information literate. In lots of the following sources, the user will need knowledge about the handling of the source, in order to be able to use it properly. Like with search engines, where simple rules have to be followed in order to get good results, it is important always to be aware of new developments and their handling.

*Therefore my last principle can be stated as:*

*Stay information literate – be aware of new developments and learn how to handle them*

## Possible information sources in business life:

All the above stated mottos and principles of course stand in the context of a vast variety of different information sources that are available; therefore the question is: which source is the best one for what kind of information need?

On one hand this question can be partly answered by regarding the questions mentioned in the chapter of “strategic information search”; on the other hand I will try to classify some possible information sources in the following part, so that it might become clear at least to some extent, which sources are used best for which purposes.

As mentioned before, this classification has the rather structured form of a table, since it can then help to get an overview over the different sources.<sup>3</sup>

## Business information concerning competitors/business partners/customers

### Directories    **Type of information to be found:**

In order to get first, quick information about competitors or future business partners/customers, directories seem to be a good source. There I can find the most important data like contact addresses, websites, branches where a company is working in, partners or references and organizational questions are answered e.g. as to opening hours or office times.

Besides, directories are good, if I am just looking up a certain topic without any specific idea about, what the information I need should look like (e.g. when I try to get familiarized in a new area). Through their structure based on topics, browsing can be carried out in a controlled way and windfall gains might occur)

### **Types of directories:**

Speaking of directories, the following different types have to be differentiated:

- **Online directories** usually have a lot of frequently updated information; lots of companies that are listed here also are present in the internet. Besides, references to non-electronic sources can be found.  
*Search Interface:* Usually online directories have a structure, where you can browse topics in a thematic way. Search functions often are provided (for example the possibility to type in a company name, that then will be searched.)  
*Example:* [www.eadp.org](http://www.eadp.org)
- **Printed directories:** Compared to online directories, they are updated annually (or every third/fourth ... month); They usually

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<sup>3</sup> Of course, the decision which one is the “right” source in professional search in business life also strongly depends on the content and branch that the company is working in. Business analysts, like Forrester or Gartner are important for staff working in IT-departments or working as information managers, because lots of the content provided by those hosts concern that area of business. Working as risk controller in a pharmaceutical industry will make complete different claims concerning the content. In the following collection, I keep to the IT-area with all my examples, just to provide continuous examples.

concern a specific topic (for example they cover a special branch or geographical area

*Example: "Gelbe Seiten"*

- **Deep Web directories** usually list lots of sources, that can't be found by regular search engines (for example, because they contain special characters in their URL, are generated automatically by content management systems).

Besides they provide access to large collections of documents and e-journals

*Example: [www.dmoz.org](http://www.dmoz.org)*

## Company websites Institute websites

In order to get more detailed numbers, facts and information about competitors/business partners or customers a good information source is the company website. Already starting with smaller companies, I have experienced finding recent figures concerning business volume, assets etc. in company report, organizational structures of the company, main target customers (target audience) and references as to which other companies or institutions products or services have been sold and deployed successfully. Information about their application areas and special professions/experiences usually also are published there.

Regarding softer facts, I also will be able to find photographs of at least the company director and some staff, which for example might be helpful to memorize names, positions and titles before a meeting.

*Example: [www.siemens.com](http://www.siemens.com)*

In addition websites of companies/institutions are very helpful, if I have specific questions, concerning road map of buses or trains. Probably the quickest way to get information about the best schedules is via the website of that organization, or by calling it directly by phone

*Example: [www.sbb.ch](http://www.sbb.ch)*

## Portals

Searching for recent publications, papers, news and other information in specific topics or branches, portals seem to be a quite good source, since they cover a specific area and usually are up to date. Besides you can get information directly from the community by using chats, forums, blogs etc. on such portals. Information here often is much more specific; you can use professional terminology and therefore search in a very exact way. In addition key players of a branch usually are represented, so that I in one glance will be able to see, which companies provide products or services in that specific topic.

*Example: [www.themanagement.de](http://www.themanagement.de)*

## Newsletters/ Mailing lists/ Push services

**Newsletters:** Very closely connected to the portals are newsletters that usually are provided by the administrators of those portals. Hereby I'm able to get current news without having to look or search for them actively.

*Example: [www.fh-htwchur.ch](http://www.fh-htwchur.ch)*

**Push services:** By setting ("intelligent") assistants I can give in my specific interests on a topic and get an alert (for example by mail) immediately, when there is a new product/news etc. fitting my parameters

*Example: [www.autoscout24.de](http://www.autoscout24.de)*

**Mailing lists:** another way of getting information in a passive way is

subscribing to mailing lists. Information about events, new publications or scientific insights etc. in a certain community usually are provided here.

*Example:* [www.swisslib.ch](http://www.swisslib.ch)

## Search engines

To get quick information or in order to search portals/websites/documents, search engines also can provide good help (please consider the most important search features mentioned above for effective search).

*Example:* [www.alltheweb.com](http://www.alltheweb.com)

## Databases

### Type of information to be found:

Databases provide good information for specific branches. Usually I here can get scientific information that is very reliable and can be verified easily. (Often those databases have fees that either have to be paid based on the numbers of documents that have been downloaded or that are paid by a general fee by the company. So this source only can be used, if I have a certain amount of money for my search.)

### Types of databases:

- **Professional online databases** usually provide information resources of a specific branch/topic (e.g. news databases, where newspapers and online-journals have been evaluated).  
*Example:* <http://web.lexis-nexis.com/professional>
- **CD-ROM Databases:** professional and scientific databases often also are sold on CD-ROM, so that the user has all resources on data carrier, and doesn't have to be online while searching for specific information  
*Example:*
- **Reference databases** are a source to find specific articles, papers or journals. Here I can look for specific topics and find out, who has written a paper about it and also where to order it.  
*Example:* <http://fabda.fh-potsdam.de/infodata>

## Business research analysts

Business hosts like Forrester, Gartner, META or GIGA usually provide very recent and up-to-date information about specific branches. Like in databases this information in most cases is scientifically based and the access to it costs something. Full text research is possible and I will be able to get articles and papers that show the development in a specific branch, forecasts, hype-cycles etc. In addition I will be able to get information about key players, current news and analysis on certain topics.

*Example:* [www.forrester.com](http://www.forrester.com)

## Libraries

For getting printed information, but also in order to get access to databases, e-journals, online-catalogues, all kinds of libraries are very good information sources. Here I can start information retrieval and order books, non-books, journals and articles; besides I will get help in my search for information and sometimes even the possibility to make a searching order, where library staff will find for me the information I need.

Here I don't want to go into details about all possibilities and different types of libraries, because it would go beyond the scope of this essay. But all together, this is a place of refuge, where I usually will have access to most

of the other sources listed above.

*Example: Kantonsbibliothek Graubünden*

### **Company- intranet/ Experts**

Lots of information usually can be found in the intranet of a company. So if my future company has such an intranet or maybe works with expert-databases, this will be a good source for information I need in business life. Depending on whether the company has some kind of knowledge management, it will be very useful to be able to find out, who's the expert on a specific topic in the company, or where to get good hints for the carrying out of a project.

*Example: Bayerische Versicherungskammer*

### **Internet**

Of course, with all the sources mentioned above, the internet isn't completely covered. For example information about the stock or development of stock quotations can be found directly in the internet as well as a lot of other information, which I won't go into in detail here.

*Example: [www.smi.ch](http://www.smi.ch)*

### **News**

Newspapers, business-journals, news on radio, the web and on TV will be a source which I will use for getting information on general topics as the economic situation in the country I'm working in, events or catastrophes that might have an impact on the economy etc.

Although this seems to be obvious, I think that it's very important to have that basic information supply, also when it sometimes won't have anything to do with my job directly – indirectly it will always provide information to me that I work with and use in some way.

Of course the collection above only shows part of all possible information sources; I think, they are the most important ones for my future business life at the moment. Naturally, developments will come, that I can't think of now and that will have an impact on my searching behavior.

## How I see the evolution of information technology

Just as the development of the Internet has had an enormous impact on our searching habits and business life in general, there might come new developments, which we can't (or don't) think of right now. Information technology here plays a very important part.

### Information technology has strong impact on our searching habits/possibilities

Regarding all the just mentioned different information sources, it becomes obvious, that we're strongly influenced by information technology in our intention to search for information in business life - near to every information system used in companies nowadays in some way is based on an electronic solution and thereby is supported by information technology.

The enormous pace at which information technology has been developed in the past years has had a strong impact on information retrieval. Just some 20 years ago, only very few people would have thought of going into an online database/directory for getting information. With the fast development of technology, Google, online directories, and information systems with mail programs nowadays belong to daily business life, as self-evident as pen and paper in former times.

Probably only very few people would have forecasted this development before the eighties. Thus, it's quite hard to make statements about future evolution of information technology from my point of view.

Besides common developments towards access from any location, improving computational capacity and memory capacity I anyhow believe that there are some new tendencies in the evolution of information technology (IT) that can be identified already.

- Firstly: a development from IT being success factor towards its role as commodity
- Secondly: the development towards ubiquitous computing
- Thirdly: a development towards semantics / the grid

### IT as commodity

With his essay "IT doesn't matter"<sup>4</sup>, Carr started a big discussion on that topic two years ago. He was the first author to publish a paper, where IT clearly was stated as commodity, comparable to electricity and railways, that is the basis for every company nowadays, but that no longer works as a success factor, providing strategic value.

I think, that Carr is quite right about that point. IT is a commodity that is needed in every area of business and institutional organizations. New solutions will be developed that provide enormous facilities to us, and everybody will use them. But at the same time, IT will more and more become a matter of course, it will support us in our need to search information and

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<sup>4</sup> Carr, N.G.: IT doesn't matter. In: Harvard Business Review; May2003, Vol. 81 Issue 5, S.41-50

in our business life by faster Internet connection, increasing computational resources and growing memory capacity.

Besides, IT will become a basic requirement for companies. Without investing some amount into IT, a company soon won't be able to survive, as it still might be possible today.

In terms of safety, I also guess that IT will soon come up with new developments that we need quite urgently. Safety of information systems, websites, databases etc. surely has to be improved, but it's just a question of time, before that will happen through the evolution of IT.

In that context the importance of IT will grow. On the other hand IT will lose much importance in terms of not staying a success factor. In the picture of Carr, the development of IT is comparable to the development of electricity: no company nowadays could afford to have a failure in supply of electricity, nothing would work without it; but on the other side no company builds its strategy upon good electrical supply. It's just there, its security and constancy has to be managed, it's important, but nobody really thinks much about it.

Software in such a development might get away from being sold by license that can be used on one computer and change towards a network of software, like we know it from telephones: You can dock on at a software docking station where you then can use all different kinds of software for a certain period of time. Thereby, you won't have to install the software, and you just pay for it as long, as you need it (just like with the phone, you might have to pay a basic fee – but software is just paid during the time you use it.)

### ***IT and ubiquitous computing***

The vision of IT being a commodity and just being there, without us being aware of it, also shows up in developments towards ubiquitous computing. I believe that we soon won't realize that a lot in daily life is based on IT and computing. Of course the idea of systems that manage all our life might be quite frightening, but to some extent also very comfortable – who doesn't like to have a coffee machine that automatically brews fresh coffee, as soon as one gets up in the morning. Or what about the fridge that automatically jots down a note on the shopping list, when the last yoghurt has been taken out of it. Such systems of course are based on IT and I guess, that in the evolution of IT, we aren't too far away from that vision.

### ***IT and semantics/the grid***

Another strong development that can be observed is a change towards semantics.

Concepts like the semantic web, working with XML (in different variations like RDF or Topic Maps) or OWL in future will surely gain importance. The idea of adding semantics to the web and being able to search “logically” in the web with “intelligent search engines” is discussed broadly and first steps in that direction have been made.

I therefore believe that for example XML will become a de-facto standard in the web and that IT will supply the needed infrastructure for using it properly.

Another vision in the context of semantics is the merging to the grid – a “super computer system” where every person who likes to can latch into a huge network of computers and share resources and programs. Since large amounts of money are invested in the research and development of the grid (for example in CERN, where also the www was developed by Tim Berners Lee), I believe that it also is just a question of time here, until we’ll have the possibility of merging into a huge network.

Of course far more developments and evolutions could be thought of in future; in the next few years, I believe that at least those three developments will take place, next to a lot of further changes.

But independent of all evolutions in IT and searching strategies one important fact has to be considered. If this and future generations aren’t taught in information literacy, the flood of data and information will become quite a problem in future. If we don’t have the capacity of judging whether information is reliable or junk, all the technical devices won’t help us any further. The same with searching information: If we don’t know how to use a simple search engine properly, we won’t be able to retrieve a database successfully.

(Even nowadays, I believe that only a very small percentage of internet users knows how to use a search engine appropriately, we are so often infected by the “Google syndrome”: typing-one-word-in-Google-and-believing-to-get-any-relevant-info-there-is).

Therefore the question about how to search for information in business life is not only a question of where to find the information with which tools, but also a question of how to use those tools properly and a strong question of discipline.

I believe that nobody will ever be able to give “the correct answer” to the question, how information is searched for in the best way – simply because there are so many different ways of doing it. But I know for sure, that it will always be a challenge and especially in times where information is handled like a factor of production, it is a very important question and therefore worth thinking about.